

**REMARKS/ARGUMENTS**

This Amendment is responsive to the Action of the Examiner mailed **April 20, 2005**.

Claim 6 has been Restricted and withdrawn pursuant to 37 CFR 1.142(b).

Claims 1, 2, 4, 5, and 7 have been rejected under 35 USC § 102(b) as being anticipated by Phelps US Patent 4,531,404. Claims 3 and 8 relating to placing the sample holder in a centrifuge and heating the sample before the compression step have been indicated allowable.

In this letter, Applicant requests reconsideration of the rejection. This reconsideration is requested because it is the compression of the rubber liner which is "closing one end of the containment cylinder around the inlet/outlet covering the sides of the containment cylinder" which is compressed. As the result if this particular compression, restoration and/or recreation of the overburden pressure is achieved in a manner which the cited prior art (including Phelps) cannot possibly achieve.

In the following response, Applicant will first summarize the invention, pointing out that it is the compression of the liner which results in restoring the three-dimensional overburden pressure on the sample. Thereafter, the references will be distinguished, it being pointed out that no reference, including Phelps, suggests applicant's expedient of compressing the liner as a way to compress the sample so that the restored overburden pressure results. Patentability will be urged.

**Claim Amendments**

On reading the claims, Applicant has attempted to clarify the construction claimed by reordering the limitations. Further, it was noted in claim 1, that an antecedent was required for the reference to the "inlet/outlet"; this antecedent has been added.

### **Invention Summarized**

The claimed relates to process for loading a centrifuge rotor with overburden onto a contained rock core sample. In the overburden situation, pressure appears on an essentially three-dimensional loading where pressure on the extant earth - which becomes the core sample - pushes and compresses the core sample equally from all directions. The question that the disclosure seeks to solve is how can this loading be recreated on an extracted core sample.

The solution includes providing a containment cylinder closed at one end. Since the restored pressure on the core sample is going to be used to establish the flow rate though the core sample with the overburden loading restored, it is necessary that the containment cylinder have a fluid inlet/outlet through the closed end of the containment cylinder. This much is undoubtedly shown by the prior art.

As a key portion of the solution, there is provided a rubber liner. This rubber liner closes one end of the containment cylinder and extends around the inlet/outlet. It also covers the sides of the containment cylinder.

The core sample is placed interior of the liner and containment cylinder for compression by the rubber liner. Finally, there is a loading ring. The loading ring is for compressing the rubber liner within the containment cylinder over the placed core sample. This loading ring compresses the rubber liner. The rubber liner essentially reacts as a fluid to apply overburden pressure to the core sample. Thus, the three-dimensional overburden loading is restored to the core sample (emphasis added).

### **References Analyzed**

In light of the emphasis of the claim, the question becomes is there any reference which compresses a rubber liner to produce overburden pressure on a core sample?

First, in order for overburden pressure to be provided according to this invention, the liner must extend around the core sample and cover at least one end of the core sample. No reference shows this construction.

Second, it is through compression of the liner that the liner acts effectively as a fluid to provide three-dimensional overburden pressure to the sample.

*Phelps* has rings 18 and 20 about the ends of the core sample which are "preferably an acrylic material which is not compressible." See column 2, lines 49-50. Additionally, the central portion of the core sample in this reference is exposed; no overburden pressure is applied from the sides of the core sample.

*Gupta* does not have the liner closing one end of the sample and has hole 12 over the other end of the sample. Three-dimensional overburden pressure cannot result.

In *Haines et al.* inner core sleeve 66, while made of a resilient material, does not cover one end of the sample. Further, (corner) retainers are used to center the resilient cylindrical liner - open at both ends - in what appears to be a gap. While pressure is placed on the sample, it is one-dimensional between plates 64, 70. Compressing the rubber to produce overburden pressure is not possible.

The core sample in *Jones* is surrounded by a rubber sleeve 80 having a gap 200 about the rubber sleeve. The rubber of the sleeve cannot be compressed to exert overburden pressure on the sample.

In *Leas et al.*, an annular space 9 has rubber discs 7, 7' at either end. No compression of the rubber discs will act to place overburden pressure on the sample; the pressure will be simple one-dimensional pressure between compressed sample ends.

In *Kelton*, the sample is held between two semi-cylindrical jaws - and is never compressed at the ends. The ends of the core sample 36a and 36b freely protrude from the compression apparatus.

In *Sarem*, tubular resilient member 74 never covers the core sample end. Hence the rubber of the resilient member can never be compressed like a fluid to place overburden pressure on the sample.

In *Maini et al.* it is a sand annulus that is being analyzed. This is submitted to be outside the relevance of the present disclosure.

*Unalmiser et al.* talks about core volume compressibility, but never gets around to say how it is done.

Appl. No. 10/757,111  
Amdt. dated May 31, 2005  
Reply to Office Action of April 20, 2005

PATENT

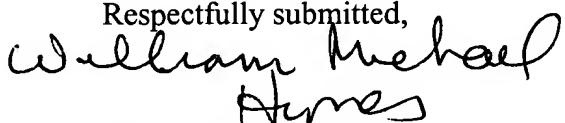
Applicant submits that the structures of the cited references are different. None of the references can be said to even suggest that the way to place overburden pressure on the sample is to compress the rubber to a fluid state and then have the rubber act against the core sample to restore three-dimensional overburden pressure to the core sample. Allowance is respectfully urged.

**CONCLUSION**

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,



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